IN THE CLAIMS:

Please cancel claim 36 without prejudice.

1   1. (Currently Amended) A method for a file server to allocate a spare disk to replace a

2   failed disk in a network storage system comprising the steps of:

3   identifying a set of spare disks, the set of spare disks attached to <u>a plurality of fil-</u>

4   <u>ers of</u> the network storage system;

5   choosing a best spare disk of the set of spare disks <u>the best spare disk attached to</u>

6   <u>any of the filers of the plurality of filers</u>; and

7   claiming ownership of the best spare disk.

1   2. (Original) The method of claim 1 further comprising the steps of:

2   choosing, in response to a failure of the step of claiming ownership, a next best

3   spare disk of the spare disks available; and

4   claiming ownership of the next best spare disk.

1   3. (Original) The method of claim 2, wherein the step of claiming ownership of the best

2   spare disk further comprises the steps of:

3   setting a first ownership attribute to a file server-owned state; and

4   setting a second ownership attribute to a file server-owned state.

1   4.(Original) The method of claim 1 wherein the step of choosing the best spare disk fur-

2   ther comprises the steps of:

3   selecting one or more disks from the set of spare disks that satisfy one or more

4   rules;

5   sorting the one or more disks selected from the set of spare disks according to a

6   set of ordered policies to identify a highest-ranked disk;

7   choosing a highest-ranked disk as the best spare disk; and

8   choosing, in response to more than one of the one or more disks being highest-

9   ranked, one disk at random, from the more than one of the one or more disks that are

10   highest-ranked, as the best spare disk.

1   5. (Original) A method of verifying that a plurality of disks in a volume are optimally

2   configured comprising the steps of:

3   identifying all of the disks in the volume;

4   obtaining disk characteristics, respectfully, from all of the disks in the volume;

5   comparing the disk characteristics with a set of policies and characteristics of

6   spare disks; and

7   alerting an administrator if a more optimal configuration is possible.

1   6.   (Original) The method of claim 5 further comprising the step of:

2   reconfiguring the disks into a more optimal configuration.

1   7.   (Currently Amended) A method of selecting a best spare disk for use by a ~~file~~

2   ~~server~~filer in a network storage system including a plurality of filers, and serving an array

3   of disks from a set of spare disks comprising the steps of:

4   selecting one or more disks from the set of spare disks attached to any of the filers

5   of the plurality of filers, said set of disks satisfying ~~that satisfy~~ one or more rules;

6   sorting the one or more disks using a set of ordered policies;

7   if only one disk is highest-ranked, selecting the one disk that is highest-ranked as

8   the best spare disk; and

9   if a plurality of disks are highest-ranked, selecting one of the disks from the plu-

10   rality of disks that are highest-ranked as the best spare disk.

1   8. (Currently Amended) A network storage system comprising:

2   one or more switches;

3   a plurality of spare disks operatively interconnected through at least one of the

4   switches; and

5   one or more file servers operatively interconnected to at least one of the switches,

6   each of the file servers including means for allocating one of the plurality of spare disks

7   to any of the servers.

1   9.   (Original) The network storage system of claim 8, wherein the means for allocat-

2   ing one or more of the plurality of spare disks further comprises:

3   means for identifying the plurality of spare disks;

4   means for selecting a best spare disk from the plurality of spare disks; and

5   means for claiming ownership of the best spare disk.

1   10. (Original) The network storage system of claim 9, wherein the means for selecting a

2   best spare disk from the plurality of spare disks further comprises:

3   means for selecting a set of disks from the plurality of spare disks that satisfy one or

4   more rules;

5   means for sorting the set of disks according to a set of ordered policies; and

6   means for selecting a highest-ranked disk from the set of disks.

1   11. (Currently Amended)   A computer-readable medium, including program instruc-

2   tions executing on a ~~file server~~filer, for allocating a replacement disk to the ~~file server~~

3   filer, the program instructions performing the steps of:

4   identifying a set of spare disks the set of spare disks attached to a plurality of fil-

5   ers of the network storage system;

6   choosing a best spare disk of the set of spare disks the best spare disk attached to

7   any of the plurality of filers; and

8   claiming ownership of the best spare disk.

1   12. (Original) The computer-readable medium of claim 11, wherein the step of choosing

2   the best spare disk further comprises the steps of:

3   selecting one or more disks from a set of spare disks that satisfy one or more

4   rules;

5   sorting the one or more disks selected from the set of spare disks according to a

6   set of ordered policies to identify a highest-ranked disk;

7   choosing a highest-ranked disk as the best spare disk; and

8   choosing, in response to more than one of the one or more disks being highest-

9   ranked, one disk at random, from the more than one of the one or more disks that are

10   highest-ranked, as the best spare disk.

1   13. (Previously Presented) A method for allocating a spare disk to replace a failed disk

2   in a network storage system, comprising:

3   maintaining a plurality of volumes in the network storage system, each volume

4   associated with a set of disk storage units;

5   maintaining a plurality of spare disks in the network storage system;

6   choosing a best spare disk of the plurality of spare disks to replace a failed disk,

7   the failed disk associated with any volume of the network storage system; and

8   replacing the failed disk with the best spare disk.

1   14. (Previously Presented) The method as in claim 13, further comprising:

2   establishing at least one file server in the network storage system; and

3   performing the step of choosing a best spare disk by the at least one file server.

15. (Previously Presented) The method as in claim 13, further comprising:

establishing at least one file server in the network storage system; and

performing the step of replacing the failed disk with the best spare disk by the file

server.

16. (Previously Presented) The method as in claim 13, further comprising:

determining the best spare disk by selecting those disks from the plurality of spare

disks which meet at least one selected rule.

17. (Previously Presented) The method as in claim 13, further comprising:

sorting disks in accordance with policies, and assigning a score to each disk as a

result of the sorting; and

selecting the disk with a highest score as the best spare disk.

18. (Previously Presented) The method as in claim 13, further comprising:

determining those disks of the plurality of spare disks which meet at least one se-

lected rule to form a selected pool of disks;

sorting disks of the selected pool of disks in accordance with policies, and assign-

ing a score to each disk as a result of the sorting; and

selecting the disk with a highest score as the best spare disk.

19. (Previously Presented) The method as in claim 13, further comprising:

2   using a random selection process to select the best spare disk in the event that two

3   or more disks appear to be equally the best spare disk.

1   20. (Previously Presented) A method for allocating a spare disk to replace a failed disk in

2   a network storage system, comprising:

3   maintaining a plurality of volumes in the network storage system, each volume

4   associated with a set of disk storage units;

5   maintaining a plurality of spare disks in the network storage system;

6   attempting to determine the best spare disk by selecting those disks from the plu-

7   rality of spare disks which meet at least one rule;

8   replacing the failed disk with the best spare disk;

9   in the event that no spare disk meets the at least one rule, selecting a spare disk

10   which violates the at least one rule as a selected disk; and

11   notifying an administrator that the selected spare disk violates the rule.

1   21. (Previously Presented) A network storage system, comprising:

2   means for maintaining a plurality of volumes in the network storage system, each

3   volume associated with a set of disk storage units;

4   means for maintaining a plurality of spare disks in the network storage system;

5   means for choosing a best spare disk of the plurality of spare disks to replace a

6   failed disk, the failed disk associated with any volume of the network storage system; and

7   means for replacing the failed disk with the best spare disk.

1   22. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for establishing at least one file server in the network storage system; and

3   means for performing the step of choosing a best spare disk by the at least one file

4   server.

1   23. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for establishing at least one file server in the network storage system; and

3   means for performing the step of replacing the failed disk with the best spare disk

4   by the file server.

1   24. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for determining the best spare disk by selecting those disks from the plural-

3   ity of spare disks which meet at least one selected rule.

1   25. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for sorting disks in accordance with policies, and assigning a score to each

3   disk as a result of the sorting; and

4   means for selecting the disk with a highest score as the best spare disk.

1   26. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for determining those disks of the plurality of spare disks which meet at

3   least one selected rule to form a selected pool of disks;

4   means for sorting disks of the selected pool of disks in accordance with policies,

5   and assigning a score to each disk as a result of the sorting; and

6   means for selecting the disk with a highest score as the best spare disk.

1   27. (Previously Presented) The network storage system of claim 21, further comprising:

2   means for using a random selection process to select the best spare disk in the

3   event that two or more disks appear to be equally the best spare disk.

1   28. (Previously Presented) A network storage system, comprising:

2   means for maintaining a plurality of volumes in the network storage system, each

3   volume associated with a set of disk storage units;

4   means for maintaining a plurality of spare disks in the network storage system;

5   means for attempting to determine a best spare disk by selecting those disks from

6   the plurality of spare disks which meet at least one rule;

7   means for replacing the failed disk with the best spare disk;

1   in the event that no spare disk meets the at least one rule, means for selecting a

2   spare disk which violates the at least one rule as a selected disk; and

3   means for notifying an administrator that the selected spare disk violates the rule.

1   29. (Previously Presented) A file server in a network storage system, comprising:

10

2   a storage adapter to connect to a plurality of disk storage units in the network

3   storage system;

4   an operating system to maintain a plurality of volumes, each volume associated

5   with a set of disk storage units, the set of disk storage units selected from the plurality of

6   disk storage units;

7   the operating system maintaining a plurality of spare disks units selected from the

8   plurality of disk storage units;

9   the operating system choosing a best spare disk of the plurality of spare disks to

10   replace a failed disk, the failed disk associated with any volume of the network storage

11   system; and

12   the operating system replacing the failed disk with the best spare disk.

1   30. (Previously Presented) The file server of claim 29, further comprising:

2   the operating system determining the best spare disk by selecting those disks from

3   the plurality of spare disks which meet at least one selected rule.

1   31. (Previously Presented) The file server system of claim 29, further comprising:

2   the operating system sorting disks in accordance with policies, and assigning a

3   score to each disk as a result of the sorting; and

4   the operating system selecting the disk with a highest score as the best spare disk.

1   32. (Previously Presented) The file server system of claim 29, further comprising:

2   the operating system determining those disks of the plurality of spare disks which

3   meet at least one selected rule to form a selected pool of disks;

4   the operating system sorting disks of the selected pool of disks in accordance with

5   policies, and assigning a score to each disk as a result of the sorting;

6   the operating system selecting the disk with a highest score as the best spare disk.

1   33. (Previously Presented) The file server of claim 29, further comprising:

2   the operating system using a random selection process to select the best spare disk

3   in the event that two or more disks appear to be equally the best spare disk.

1   34. (Previously Presented) A file server in a network storage system, comprising:

2   a storage adapter to connect to a plurality of disk storage units in the network

3   storage system;

4   an operating system to maintain a plurality of volumes, each volume associated

5   with a set of disk storage units, the set of disk storage units selected from the plurality of

6   disk storage units;

7   the operating system maintaining a plurality of spare disks units selected from the

8   plurality of disk storage units;

9   the operating system choosing a best spare disk of the plurality of spare disks to

10   replace a failed disk, the failed disk associated with any volume of the network storage

11   system;

12   the operating system attempting to determine a best spare disk by selecting those

13   disks from the plurality of spare disks which meet at least one rule;

14   the operating system replacing the failed disk with the best spare disk;

15   in the event that no spare disk meets the at least one rule, the operating system se-

16   lecting a spare disk which violates the at least one rule as a selected disk; and

17   the operating system notifying an administrator that the selected spare disk vio-

18   lates the rule.

1   35. (Previously Presented) A computer readable media, comprising:

2   said computer readable media containing instructions for execution on a processor

3   for the practice of a method for allocating a spare disk to replace a failed disk in a net-

4   work storage system, the method having the steps of,

5   maintaining a plurality of volumes in the network storage system, each volume

6   associated with a set of disk storage units;

7   maintaining a plurality of spare disks in the network storage system;

8   choosing a best spare disk of the plurality of spare disks to replace a failed disk,

9   the failed disk associated with any volume of the network storage system; and

10   replacing the failed disk with the best spare disk.

1   36. (Cancelled)